

REMARKS/ARGUMENTS

I. Status of Claims

- Claims 1 and 7 are Independent Claims.
- Claims 1, 7, and 8 are currently amended.
- Claim 1, step c is objected to for grammatical informality.
- Claims 1-8 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
- Claims 1-8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Spiro (US Pat. No. 5,819,228) (hereinafter referred to as **Spiro**) in view of Lockwood (US Pat. No. 5,706,441) (hereinafter referred to as **Lockwood**).

II. Response

- A. Claim 1, step c, as well as Claim 1, steps d.i. and d.iii., and Claims 7 and 8, have been amended to correct for a grammatical informality.**

Examiner objected to the phrase “each of said patient group” in Claim 1, step c, because it is grammatically incorrect. Applicants have amended this phrase to delete the words “each of”. Applicants have similarly amended Claim 1, steps d.i. and d.iii., and Claims 7 and 8 to reflect this change. With these amendments, Applicants believe they have overcome this objection and thus respectfully request Examiner to remove this objection.

- B. Applicants’ “healthcare provided service” negative limitation applies to “episode” in the claims.**

Examiner rejected Claims 1-5 and 7-8 for indefiniteness because Examiner believes that a “diagnosis” is a type of “healthcare provided service.” However, Applicants intended to apply

the negative limitation in the claims to the term “episode” as opposed to “diagnosis”. Resolving this ambiguity, Applicants have amended Claims 1 and 7 to address this reference.

As Applicants have attempted to explain in the previous office action reply, support for this negative limitation is provided for in the Specification. Seen in paragraph [0025], Applicants’ “episode” is defined a “group of diagnoses on the same patient that describes the course of a given illness.” See Specification, para. [0025]. However, the definition of the term “episode” does not include “the nature of services delivered, the doctor delivering services, or the site of services.” Id. In addition, the definition of the term “episode” does not assume that services are temporally contiguous. Id. These definition restrictions are applicable to “episode”, as opposed to “diagnoses”.

With this clarification, Applicants believe they have overcome the indefiniteness rejections for Claims 1-5 and 7-8. Thus, withdrawal of these rejections is respectfully requested.

C. “Probability calculation” is monotonely related to the probability of how similar two diagnoses are to each other and the time that lapses in between such diagnoses.

In rejecting Claim 6 based on indefiniteness, Examiner wondered how the recited features of Claim 6 can produce Applicants’ claimed probability result. To help clarify, “probability calculation” refers to a function that is monotonely related to the probability that two different diagnoses belong to the same episode. See Specification, paras. [0027]-[0031]. Such probability is a function of time when both diagnoses occur and how similar they are to each other. Id.

This resulting fraction is monotonely related to such probability (meaning when the value of the fraction goes up, the value of the probability increases, and when the value of the fraction

goes down, so does the probability). The probability of how close the diagnoses are to being the same episode is proportional to the similarity value (which is a value based on how similar the two diagnoses are to each other) and is inversely related to the time between diagnosis value (which is a value based on the time that takes place in between the two diagnoses). See Specification, paras. [0029], [0032]-[0033], [0037]. The former is the numerator that is multiplied by some constant. Id. The latter is the denominator that is multiplied by some constant, and this product is added to one. Id.

Having clarified how this calculation works, Applicants believe they have overcome the indefiniteness rejection. Thus, Applicants respectfully request that this rejection be withdrawn as well.

D. Claim 1 has been amended to reflect the above “probability calculation” clarification.

Applicants have amended Claim 1 to reflect the clarification made in the above Section II.C. Support for these changes can be found in paragraphs [0027]-[0031] of the Specification. See Specification, paras. [0027]-[0031].

E. A Spiro-Lockwood combination would not replicate the claimed invention.

The following identifies what Applicants believe are the key components of **Spiro** and **Lockwood** individually. Then, Applicants will attempt to show what a combination of **Spiro** and **Lockwood** may look like. Finally, Applicants will provide their response as to what they believe **Spiro-Lockwood** does not replicate the claimed invention.

In rejecting Claims 1, 7 and 8, Examiner combines **Spiro** with **Lockwood**. In summary, **Spiro** is an adjustable, health care payment system for physicians and/or service providers. It's

simply a way to determine how much each physician or provider is to be paid for services rendered.

Spiro's system introduces a payment mechanism for outpatient diagnostic imaging services based upon an episode of care payment methodology. See Spiro, Abstract. **Spiro's** episode of care for a patient is a time period in which all imaging studies and tests are performed by physicians and/or providers. Id. Based on the types of imaging studies performed, **Spiro** multiplies the total episodes of care by an intensity adjustment factor to get a total intensity adjusted episode of care. Id. To determine how much each provider is to be paid from the funds received from patients, the provider's percentage of the total intensity adjusted episode of care is calculated. Id.; see also Spiro, col. 3, ll. 1-29. Payments to health care providers can be based on their diagnosis or treatment of specific diagnoses (such as treatment for heart disease, diabetes, breast cancer, etc.), or even diagnostic imaging studies. Id.

In rejecting Claims 1, 7, and 8, Examiner stated that **Spiro** teaches all but the severity analyzer element of the claims. See Office Action (dated 12/16/2008), pp. 4-6. Compensating for this missing element, Examiner cites **Lockwood**.

Lockwood presents a measure of objectively assessing the complexity of health-care services delivered by each health-care provider from among a group of health-care providers. See Lockwood, col. 4, ll. 35-39. In-patient and out-patient records detailing services (whether routine or not, primary or supplementary, etc.) rendered are combined to create a plurality of sickness episode records. Id.; see also col. 10, ll. 46-61. Each sickness episode date record corresponds to services performed on the patient. Id. For each of these records, an objective severity assessment is performed. Id., col. 4, ll. 51-56. An episode severity score is assigned to

each objective severity assessment result. Id. The score is then used to determine the case load for each service provider. Id. at ll. 56-58.

If one were to combine **Spiro** with **Lockwood**, the combination may something like the following: an adjustable, health care payment system for physicians and/or service providers that determines how much each physician or provider is to be paid for services rendered, where the services to be rendered are based upon their case load as set by an objective severity assessment of patients' sickness episode records.

Such combination reveals an interesting payment concept. However, it does not represent Applicants' claimed invention. Here, Applicants were looking to resolve the problem of how a patient's episode of care can be measured. See e.g., Specification, para. [0024]. They conquered this problem by creating an assessment system to compare two different diagnoses of a patient to determine the severity of the patient's illness or episodes of illness. Id. at paras. [0025]-[0034].

The assessment system generates a fractional value that is monotonely proportional to the probability relationship between two different diagnoses according to their similarity and the time between diagnoses. See supra § II.C. The fractional value goes up as this probability relationship goes up; the fractional value goes down as this probability relationship goes down. Id. The similarity value (the value based on how similar the two diagnoses are to each other) used in the probability calculation has a direct relationship with the probability. Id. The time between diagnosis value (the value based on the time that takes place in between the two diagnoses) has an inversely relationship with the probability. Id. The former is the numerator that is multiplied by some constant. Id. The latter is the denominator that is multiplied by some

constant, and the resulting product is added to one. Id. Using the resulting value, one can assess how close and severe the patient's diagnoses are to an episode of care.

In essence, while the cited prior art talk about a patient's diagnoses and a patient's severity of an illness, they do not establish a link on how the diagnoses explain or identify the severity of the illness. The claimed invention provides this link. By providing such linkage, Applicants' claimed invention is more complementary than contradictory to the cited prior art.

Because of these differences, one may now be able see how the **Spiro-Lockwood** combination cannot replicate Applicants' claimed invention. It is therefore Applicants respectful request that Examiner withdraw these § 103 rejections.

III. Dependent Claims 2-6 and 8 depend on Independent Claims.

Because Dependent Claims 2-6 and 8 ultimately depend on their respective independent claims, the arguments presented for the independent claims also apply to these dependent claims. Therefore, Applicants respectfully request withdrawal of these objections.

IV. Conclusion

For all of the reasons advanced above, Applicants respectfully believe that the application meets Examiner's 35 U.S.C. §§ 103 and 112 concerns. If there are any outstanding issues that might be resolved by an interview or an Examiner's Amendment, Applicants request that the Examiner call the Applicants' agents at the telephone number shown below.

V. Deposit Account

Applicants hereby authorize the Commissioner to credit or debit any outstanding fees in connection with this patent application using Deposit Account No. 50-3212.

Respectfully submitted,

/David Yee, Reg. No. 55,753/
David Yee, Registration No. 55,753

Appl'n No. 10/054,706
Response to December 16, 2008 Office Action

Office of Technology Transfer
George Mason University
4400 University Dr., MSN5G5
Fairfax, VA 22030
Phone: 703-993-3949
Fax: 703-993-9710
E-mail: dyee@gmu.edu

Filed: February 11, 2009